Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer program product tangibly embodied on a machine-readable storage device, the product comprising instructions operable to cause data processing apparatus to:

display a table of data as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receive from the user one input gesture selecting a marker;

establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order;

sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

display the sorted table of data.

2. (Original) The product of claim 1, wherein the user input gesture is a selecting gesture for selecting the marker.

3. (Original) The product of claim 1, wherein the user input gesture comprises a pointing device action on the marker.

Applicant : Simonson et al.
Serial No. : 10/698,804
Filed : October 31, 2003
Page : 3 of 26

Attorney's Docket No.: 07844-0631001 / P584

4. (Original) The product of claim 1, wherein the user input gesture is a mouse click on the marker.

5. (Original) The product of claim 1, wherein the user input gesture is a double mouse click on the marker.

6. (Original) The product of claim 1, further comprising instructions to:

represent the sort key order visually in the table by displaying the markers with a pattern of distinct visual properties.

7. (Original) The product of claim 6, wherein the pattern of distinct visual properties indicates the sort key order.

8. (Original) The product of claim 6, wherein the pattern of distinct visual properties comprises a set of distinct colors.

9. (Original) The product of claim 6, wherein the instructions to represent the sort key order visually comprise instructions to display the markers that are associated with sort keys with distinct background colors.

10. (Previously Presented) The product of claim 6, wherein the pattern of distinct visual properties comprises a set of distinct non-textual representations identifying a sequence of each sort key in the sort key order.

11. (Previously Presented) The product of claim 1, further comprising instructions to:

determine whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key, change a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key, establish the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, and maintain the positions and the sort directions of the remaining sort keys in the sort key order.

12. (Original) The product of claim 1, wherein the user input gesture is a dragging gesture for selecting the marker by dragging the marker to an area on the graphical user interface display.

13. (Original) The product of claim 12, wherein the area on the graphical user interface display comprises an icon.

14. (Previously Presented) The product of claim 12, wherein the area on the graphical user interface display comprises a separate sort key list window.

15. (Previously Presented) The product of claim 1, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one.

16. (Previously Presented) The product of claim 15, wherein the table of data has one or more sort keys that are not part of the sort key order having the predetermined number of sort keys, the sort key order including the most significant sort key and a least significant sort key, the product further comprising instructions to:

determine whether a row or column associated with a user-selected marker is associated with a sort key in the sort key order, and

when the row or column associated with the user-selected marker is associated with a sort key not in the sort key order, remove the least significant sort key from the sort key order, adding the row or column associated with the user-selected marker to the sort key order, establish the row or column associated with the user-selected marker as the most significant sort key, and maintain the positions and the sort directions of the remaining sort keys in the sort key order, and

when the row or column associated with a user-selected marker is associated with a sort key in the sort key order, establish the row or column associated with the user-selected marker as the most significant sort key, and maintain the positions and the sort directions of the remaining sort keys in the sort key order.

17. (Previously Presented) The product of claim 1, further comprising instructions to:

receive from the user an input gesture deselecting a marker associated with an intermediate sort key of at least three sort keys; and

remove the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

18. (Original) The product of claim 1, wherein the marker is a column header.

19. (Original) The product of claim 1, wherein the marker is a row header.

20. (Currently Amended) A computer program product tangibly embodied on a machine-readable storage device for interacting with a user, the product comprising instructions operable to cause data processing apparatus to:

display a table of data as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receive from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order;

sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

display the sorted table of data.

21. (Previously Presented) The product of claim 20, wherein the area of the graphical user interface display is an icon, the product further comprising instructions to:

receive from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

Applicant : Simonson et al.
Serial No. : 10/698,804
Filed : October 31, 2003
Page : 6 of 26

Attorney's Docket No.: 07844-0631001 / P584

display, in the separate sort key list window on the graphical user interface display, a list
of sort keys comprising the one or more sort keys for the table of data having a sort key order
including the most significant sort key.

22. (Previously Presented) The product of claim 20, wherein the area of the graphical user
interface display is a separate sort key list window, the product further comprising instructions
to:

display, in the separate sort key list window, a list of sort keys comprising the one or
more sort keys for the table of data having a sort key order including the most significant sort
key.

23. (Currently Amended) A computer program product tangibly embodied on a
machine-readable storage device for interacting with a user, the product comprising instructions
operable to cause data processing apparatus to:

display a table of data as an element of a graphical user interface display and display a set
of markers, each marker being associated with a row of the table or each marker being associated
with a column of the table, the table of data having a plurality of sort keys having a specified sort
key order including a most significant sort key, each sort key being a row or each sort key being
a column of the table, each sort key having a sort direction, each sort key having a position in the
sort key order;

receive from the user one input gesture selecting a marker by dragging the marker from a
location associated with a particular row or column of the table to a location within an area of the
graphical user interface display;

establish the row or column associated with the user-selected marker as a sort key having
an intermediate position in the sort key order defined by the location within the area in response
to the input gesture including maintaining the sort direction from the sort key order, and maintain
the positions and the sort directions of the remaining sort keys in the sort key order including a
most significant sort key and a least significant sort key;

sort the respective rows or columns of the table of data according to the plurality of sort

keys, the sort key order, and the sort key directions in response to the input gesture; and

      display the sorted <u>table of</u> data.

24 - 31 (Cancelled)

32. (Currently Amended) A method comprising:

      displaying a table of data as an element of a graphical user interface display and
displaying a set of markers, each marker being associated with a row of the table or each marker
being associated with a column of the table, the table of data having a plurality of sort keys
having a specified sort key order including a most significant sort key, each sort key being a row
or each sort key being a column of the table, each sort key having a sort direction, each sort key
having a position in the sort key order;

      receiving from the user one input gesture selecting a marker and, in response to the input
gesture selecting the marker, establishing the row or column associated with the user-selected
marker as the most significant sort key in the sort key order including maintaining the sort
direction from the sort key order, and maintaining the positions and the sort directions of two or
more remaining sort keys in the sort key order;

      sorting the respective rows or columns of the table of data according to the plurality of
sort keys, the sort key order, and the sort key directions in response to the input gesture; and

      displaying the sorted <u>table of</u> data.

33. (Original) The method of claim 32, wherein the user input gesture is a selecting gesture for
selecting the marker.

34. (Original) The method of claim 32, wherein the user input gesture is a dragging gesture for
selecting the marker by dragging the marker to an area on the graphical user interface display.

35. (Original) The method of claim 32, further comprising:

      representing the sort key order visually in the table by displaying the markers with a
pattern of distinct visual properties.

36. (Previously Presented) The method of claim 32, further comprising:

    receiving from the user an input gesture deselecting a marker associated with a sort key; and

    removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

37. (Currently Amended) A method comprising:

    displaying a table of data as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

    receiving from one user an input gesture selecting a marker;

    determining whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key in the sort key order, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key in the sort key order, establishing the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

    sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

    displaying the sorted table of data.

38. (Currently Amended) A method comprising:

 displaying a table of data as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key being a row or a column of the table, each sort key having a position in the sort key order, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one;

 receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order;

 determining whether the table of data has the predetermined number of sort keys in the sort key order, and if the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if the table of data has fewer than the predetermined number of sort keys in the sort key order, adding the row or column associated with the user-selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order;

 sorting the table of data according to the two or more sort keys in the sort key order, and the sort key directions in response to the input gesture; and

 displaying the sorted <u>table of</u> data.

39. (Currently Amended) A method comprising:

     displaying a table of data as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

     receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

     establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

     sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

     displaying the sorted <u>table of</u> data.

40. (Previously Presented) The method of claim 39, wherein the area of the graphical user interface display is an icon, the method further comprising:

     receiving from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

     displaying, in the separate sort key list window on the graphical user interface display, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

41. (Previously Presented) The method of claim 39, wherein the area of the graphical user interface display is a separate sort key list window, the method further comprising:

     displaying, in the separate sort key list window, a list of sort keys comprising the one or

Applicant : Simonson et al.
Serial No. : 10/698,804
Filed : October 31, 2003
Page : 11 of 26

Attorney's Docket No.: 07844-0631001 / P584

more sort keys for the table of data having a sort key order including the most significant sort key.

42. (Currently Amended) A method comprising:

displaying a table of data as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display;

establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order including a most significant sort key and a least significant sort key;

sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data.

43. (Cancelled)

Applicant : Simonson et al.   Attorney's Docket No.: 07844-0631001 / P584
Serial No. : 10/698,804
Filed   : October 31, 2003
Page   : 12 of 26

44. (Currently Amended) An apparatus comprising:

      means for displaying a table of data as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

      means for receiving from the user one input gesture selecting a marker;

      means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

      means for sorting the respective rows or columns of the table of data according to the plurality of sort keys,   the sort key order, and the sort key directions in response to the input gesture; and

      means for displaying the sorted table of data.

45. (Original) Apparatus of claim 44, further comprising:

      means for representing the sort key order visually in the table by displaying the markers with a pattern of distinct visual properties.

46. (Previously Presented) Apparatus of claim 44, further comprising:

      means for receiving from the user an input gesture deselecting a marker associated with a sort key; and

      means for removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

47. (Currently Amended) An apparatus comprising:

means for displaying a table of data as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker;

means for determining whether the user-selected marker is associated with the most significant sort key, and if the user-selected marker is associated with the most significant sort key, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant sort key, establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data.

48. (Currently Amended) An apparatus comprising:

means for displaying a table of data as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key having a position in the sort key order, each sort key being a row or a column of the table, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one;

means for receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order;

means for determining whether the table of data has the predetermined number of sort keys in the sort key order, and if the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if the table of data has fewer than the predetermined number of sort keys in the sort key order, adding the row or column associated with the user-selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order;

means for sorting the table of data according to the two or more sort keys in the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data.

49. (Currently Amended) An apparatus comprising:

     means for displaying a table of data as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

     means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

     means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

     means for sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

     means for displaying the sorted table of data.

50. (Previously Presented) The apparatus of claim 49, wherein the area of the graphical user interface display is an icon, the apparatus further comprising:

     means for receiving from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

     means for displaying, in the separate sort key list window on the graphical user interface display, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

51. (Previously Presented) Apparatus of claim 49, wherein the area of the graphical user interface display is a separate sort key list window, the apparatus further comprising:

means for displaying, in the separate sort key list window, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

52. (Currently Amended) An apparatus comprising:

means for displaying a table of data as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display;

means for establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted <u>table of</u> data.

53. (Cancelled)